User Manual

code

Code Reader 3.0

Portable Data Terminal

This version of the manual supports firmware 3000 and greater.

Statement of Agency Compliance

The CR3 has been tested for compliance with FCC regulations and was found to be compliant with all applicable FCC Rules and Regulations.

IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, this device must not be co-located or operate in conjunction with any other antenna or transmitter.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The CR3 has been tested for compliance to CE standards and guidelines and was found to conform to applicable CE standards, specifically the EMC requirements EN 55024, ESD EN 61000-4-2, Radiated RF Immunity EN 61000-4-3, ENV 50204, EFT EN 61000-4-4, Conducted RF Immunity EN 61000-4-6, EN 55022, Class B Radiated Emissions, and Class B Conducted Emissions.

The CR3 can be set to use targeting lasers. If the targeting lasers are activated, do not stare into the beams. The CR3's targeting lasers have been rated as Class IIa Lasers by IEC 60825-1.

The CR3 has been tested by an independent electromagnetic compatibility laboratory in accordance with the applicable specifications and instructions.

Code Reader 3.0 User Manual

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Chapter 1 - Getting Started

1.1 - Introduction

The CR3 establishes a new benchmark for Portable Data Terminals and Hand Held Computers by combining the industry's best imaging technology with a graphic display and rugged keyboard to create the smallest and lightest full-featured bar code reading terminal on the market.

Using the same ergonomic platform as the highly successful Code Reader 2.0, the CR3 extends mobile all-symbology bar code reading to include information display and keyboard entry.

The CR3 instantly reads large linear as well as high density matrix symbols due to Code Corporation's unique Dynamic Optimization Technology (DOT), which continuously adapts the resolution, illumination, and image field for the fastest automatic symbology identification and decoding over the widest range of symbology types, sizes, recording surfaces and ambient lighting. With DOT, the CR3 achieves matrix symbol decoding at speeds that are similar to linear bar code decoding, while preserving battery energy. By monitoring each user's reading patterns, DOT reduces training time and eliminates the need for manual configuration optimization through parameter settings.

Code eliminates the need for costly, high-overhead operating systems by providing an open platform JavaScript development environment within its CodeXML Applications Development Suite. With CodeXML and JavaScript, Developers and Information Technology organizations no longer need to worry about expensive porting of applications between Windows, Windows Pocket PC, Windows CE.Net, et.al.. A unique feature of the Applications Development Suite is the ability to protect both development investment and data security by a customer-unique key encryption, which allows the developer to control the distribution and modification of applications to specific serial-numbered CR3 units.

The CR3 features a 1.3 MegaPixel dual-field image collection engine, a 400MHz AMD Alchemy au1100 CPU, and 4MB of non-volatile memory. Portable operations are supported by a 1950 mAH Lithium Ion Battery and a Real Time Clock with its own battery backup system. For wireless communications, a 2.4 GHz radio system is available and compatible with a wide range of Bluetooth™ systems, as well as the CodeXML Modem, with a unique data and pairing encryption system for unsurpassed wireless data security.

The CR3 will instantly decode all bar and 2D codes

1.2 - Unpacking

Remove the imager from its packing and inspect it for damage. If the scanner was damaged during shipping, please call Code at (801) 495-2200.

The standard CR3 unit is shipped with a USB cable interface. The unit also features a 1950 mAH battery that must be installed in the unit at all times.

Various accessories are available for the CR3.

- 3 cable options (USB, RS232 or PS/2)
- Class 1 Bluetooth radio with 300 foot operating range
- Clip-on pistol grip handle
- External battery charger
- CodeXML Bluetooth modem

Please keep your packing materials. The CR3 is shipped in an approved shipping container and should be used if you ever need to return your equipment for servicing.

1.3 - Powering On/Off Reader

To power up the reader, press and hold (for 1 second) any of the red trigger buttons (Figure 1.1).

The reader will power down after 2 hours of non-use. To change the default settings, please see Section 4.7 - Reader Sleep/Time Out settings.

Figure 1.1

1.4 - Keypad/Icon Overview

The chart below shows key/button functions.

	Description of Button Function			
Key	**Numeric Mode**	**Upper Case Text Mode**	**Lower Case Text Mode**	**Symbol Mode**
SHIFT	Toggles between numeric characters, upper case text, lower case text, and symbol character input	Toggles between numeric characters, upper case text, lower case text, and symbol character input	Toggles between numeric characters, upper case text, lower case text, and symbol character input	Toggles between numeric characters, upper case text, lower case text, and symbol character input
1 space	1	Space, 1	Space, 1	Space ‘ ; (
2 ABC	2	A, B, C, 2	a, b, c, 2	. “ \ )
3 DEF	3	D, E, F, 3	d, e, f, 3	@ + < ^
4 GHI	4	G, H, I, 4	g, h, i, 4	? = > Space
5 JKL	5	J, K, L, 5	j, k, l, 5	! / { Space
6 MNO	6	M, N, O, 6	m, n, o, 6	- $ } Space
7 PQRS	7	P, Q, R, S, 7	p, q, r, s, 7	, * [Space
8 TUV	8	T, U, V, 8	t, u, v, 8	& #] Space
9 WXYZ	9	W, X, Y, Z, 9	w, x, y, z, 9	: % _ Space
0	0	0	0	Toggles between 4 sets of symbols – when pressed, each symbol set is displayed
CLEAR	Backspace and clear messages	Backspace and clear messages	Backspace and clear messages	Backspace and clear messages

The chart below shows all of the icons for CodeViewer™ software and their definitions.

Icon	Description
Power Icons	
	50% to 100% capacity of battery
	20% to 50% capacity of battery
	0% to 20% capacity of battery – recharge battery as soon as possible
	Battery is recharging
	No icon is displayed when battery blank is used with a cabled reader
Connection Icon	
	Reader is connected physically or wirelessly to a receiving device (computer, handheld, etc.) Note: Some RS232 configurations can not be detected
	No icon is displayed when the reader does not detect a connection
Communication Mode Icons	
	RS232 communication mode enabled
	PS2 communication mode enabled
	USB communication mode enabled
	Bluetooth communication mode enabled
Packet Mode Icons	
	One way mode – no acknowledgement required
	Two way mode – packetized, bidirectional communication between a CR3 and an application (may also indicate download mode)
	Keyboard mode – can be used as either USB keyboard or PS/2 keyboard input mode
	Virtual COM port 1 mode – data can be sent in one way mode
	Secure mode – data encryption mode enabled
Memory Icons	
	No stored data to send
	Some stored data to send
	Memory is full – no available memory
	No batch mode – data is not being stored in the reader's memory
Input Mode Icons	
	Caps Lock – data entered manually on the keypad will be in capital letters
	Lower Case – data entered manually on the keypad will be in lower case letters
	Numeric – data entered manually on the keypad will be numeric
	Symbol – data entered manually on the keypad will be symbols
	Locked – buttons pushed on the reader's keypad will be ignored

1.5 - Batch Operation

1.5.1 - Introduction

Batch data storage and data transfer are controlled by the resident JavaScript application on your CR3 reader. Please consult the manual for the application on your CR3 for instructions on how to control data storage and transfer.

1.5.2 - RS232 Considerations

In RS232 Cabled - No Power mode, the CR3 will behave as if it is always connected even though the serial cable is disconnected or the power adapter is unplugged. Scanned data will be sent, regardless of connection status. Data scanned in Cabled mode will be lost if the CR3 is not connected to the serial cable. It will not buffer the data, unless Send & Store mode has been enabled.

In RS232 Cabled mode, the CR3 will detect if it is connected to a powered serial cable, and will send the data. If a powered serial cable is not connected or if the power adapter is not connected to the serial cable, the CR3 will buffer the data. When the CR3 is then connected to a powered serial cable, the data will automatically upload.

Important Note: If you are in RS232 Cabled mode, when you place a unit in a charger the reader will behave as it is being cabled, and download the data. THE DATA WILL BE ERASED FROM MEMORY. To disable this feature, scan the RS232 Cabled - No Power code.

RS232 Cabled (Default)

RS232 Cabled - No Power

1.6 - Cabled Operation

1.6.1 - Introduction

The CR3 is available with USB, RS232 and PS2 cables. All of the cables are connected to the CR3 with a 8-pin DIN connector. Different cables may be required for different hosts.

Hand Held CR3 - To install a cable on the standard palm-held unit, correctly line up the 8-pin DIN connector into back end of the unit. The arrows on the connector should be facing down (Figure 1.2). When they are lined up, firmly push the cable in. The cable has a locking mechanism that will firmly hold the cable in place (Figure 1.3). To unattach the cable from the reader, **YOU MUST** pinch the plastic on the 8-pin din (Figure 1.4) and pull back to disengage the connector.

CR3 with Attachable Handle - If you purchased the attachable handle accessory, the 8-pin DIN connection is at the botton of the handle (Figure 1.5). Insert the 8-pin connector and firmly push cable into the handle. The cable has a locking mechanism that will firmly hold the cale in place (Figure 1.6). To unattach the cable from the reader, **YOU MUST** pinch the plastic on the 8-pin din (Figure 1.4) and pull back to disengage the connector.

Figure 1.2

Figure 1.3

Figure 1.4

Figure 1.5

Figure 1.6

1.6.2 - USB Cable Installation Guide

To connect the CR3 to your host computer via USB interface:

1. Make sure the USB cable is sufficiently attached to your CR3 unit (Figure 1.7).

2. You **DO NOT** need to power off your host computer (Figure 1.8). The CR3 with USB interface can be plugged into any host while the computer is powered up.

3. Connect the USB interface cable to the host (Figure 1.9). If you are unsure of the proper location to connect the USB cable please consult the manual of your host computer.

4. The USB interface does not require additional power supply. If you are using 1950 mAH battery for batch mode, the CR3 will automatically recharge the battery whenever the unit is a attached to a host that is powered up.

5. The CR3 will power on automatically.

6. Scan the USB Keyboard Mode code to then the Save Setting code to configure reader:

USB Keyboard Mode

M134_02

Save Settings

M188_02

7. Your CR3 unit should be ready for use. Open the application on your host computer that you wish to send data to and begin scanning.

Figure 1.7

Figure 1.8

Figure 1.9

1.6.2.1 - USB Communication Settings

USB Keyboard Mode - Data is sent from the Reader and interpreted by the host just as if a US keyboard was being used to enter data.

USB Downloader - This mode is the standard way of transferring unformatted, unpacketized data through the USB port.

USB Native Two Way Mode - This mode is utilized when there is a need for bidirectional communication between the CR3 and an application through the USB port (i.e. Time Stamp, Error Checking...)

USB Virtual COM 1 Way Mode - This mode allows a USB-cabled CR3 to function as a virtual COM port. To use the CR3 in this mode, download the driver at www.codecorp.com/downloads/codexmltools.htm.

Scan the following codes to set the appropriate USB communication setting:

USB Keyboard

M134_02

USB Downloader

M133_01

USB Native Two Way Mode

M135_04

USB Virtual COM 1 Way Mode

M668_01

You must first install the virtual com port driver before utilizing this mode. You may download the driver at: www.codecorp.com

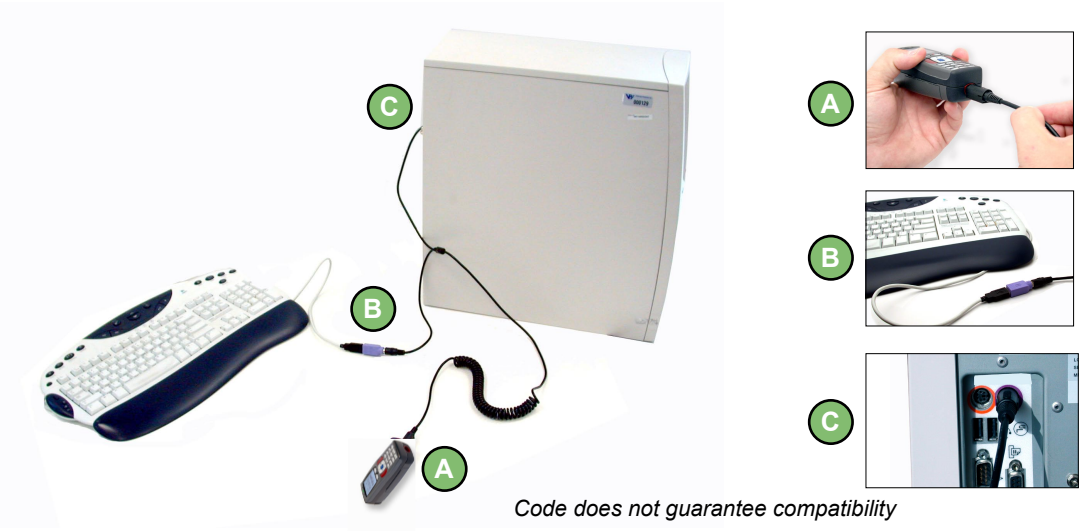
Reset to USB Factory Defaults

M049_03

Radio settings will not be reset with this code.

1.6.3 - PS2 Cable Installation Guide

1. Power off the host computer.
2. Attach the end of the PS2 cable with the single connector (A) to the CR3.
3. If external keyboard exists, unattach your keyboard from the host and connect the appropriate connector to the PS2 cable (B).
4. Connect the other connector to host computer into keyboard port (C). The CR3 is powered by the PS2 port and does not require a power supply.



Code does not guarantee compatibility with all models of laptops.

5. Set the CR3 to PS2 mode by scanning the PS2 Mode code below.
6. Scan the Save Settings code.
7. Your CR3 unit is now ready. Open the appropriate application and begin scanning data.

WARNING: Code does not recommend using Batch or Bluetooth Radio modes with the PS2 interface. You may need to disconnect the CR3 and the keyboard which may result in the host computer freezing.

1.6.3.1 - PS2 Communication Settings

Scan the following codes to set the reader to the PS2 communication setting:

PS2 Mode

M126_01

Save Settings

M188_02

Reset to PS2 Factory Defaults

M060_03

1.6.4 - RS232 Cable Installation Guide

To connect the CR3 to your host computer via RS232 interface:

1. Make sure the RS232 cable is sufficiently attached to your unit.

2. Connect the RS232 interface cable to your host computer (Figure 1.10). If you are unsure of the proper location to connect the RS232 cable please consult the manual of your host computer.

3. The RS232 interface should have come with a power supply. Plug the power supply adapter into the RS232 interface cable (Figure 1.11) and then plug the power adapter into a wall socket (Figure 1.12). The RS232 interface does not require additional power. However, if you are using the RS232 interface and utilizing Batch functionality, please read the Important Note in batch section. If you are using the 1950 mAH battery for batch mode, the CR3 will recharge the battery whenever the unit is a attached to a RS232 cable that is plugged into a wall socket.

Figure 1.10

Figure 1.11

Figure 1.12

4. The CR3 will power on automatically.

5. Scan the RS232 One Way Mode code then the Save Settings code to configure reader:

RS232 One Way Mode

M131_01

Save Settings

M188_02

RS232 Factory Default Settings
Mode: RS232 One Way Mode
Max Range
Baud Rate: 57600
Stop Bits: 1
Data Bits: 8
Parity: None

6. Your CR3 unit should be ready for use. Open the application on your host computer that will receive scanned data and begin scanning.

1.6.4.1 - RS232 Communication Data Bit Settings

Scan the following codes to set the appropriate data bit:

7 Data Bits

M100_01

8 Data Bits (Default)

M101_01

1.6.4.2 - RS232 Communication Stop Bit Settings

Scan the following codes to set the appropriate stop bit data:

1 Stop Bit (Default)

M105_01

2 Stop Bits

M106_01

1.6.4.3 - RS232 Communication Baud Rate Settings

Scan the following codes to set the appropriate baud rate:

1200

M092_01

2400

M093_01

4800

M094_01

9600

M095_01

19200

M096_01

38400

M097_01

57600 (Default)

M098_01

115200

M099_01

1.6.4.4 - RS232 Communication Parity Settings

Scan the following codes to set parity:

Even

M102_01

Odd

M104_01

None (Default)

M103_01

1.6.5 - Cabled Reader - Time Out Settings

Will only work in versions 2098 and above. Scan one of the codes below to set the amount of time a cabled CR3 will be enumerated before entering sleep mode in order to charge the battery:

Cabled - 2 hours

M136_01

Cabled - Always (Default)

M137_01

1.7 - Bluetooth Radio Operation

1.7.1 - Introduction

This CR3 features a Bluetooth® wireless radio. The radio allows for point to point wireless communication with other Bluetooth devices that support serial port protocol (SPP). The following guide will give you general instructions on connecting your CR3 to a desktop or laptop computer with a Bluetooth radio.

Connecting With A QuickConnect Code

The easiest way to connect to a Bluetooth device is to visit the Code website and create a *QuickConnect Code* that is specific to your device (Figure 1.13). This code will link your CR3 directly to the desired Bluetooth device. To create a *QuickConnect Code,* you will need to know the Bluetooth address (often referred to as the BD_ADDR) of that device. You can usually find the 12-character Bluetooth address somewhere on the device near the device's serial number (see Figure 1.14).

Figure 1.13

Figure 1.14

If you purchased a CodeXML Bluetooth Modem or a Belkin® Bluetooth adapter from Code or from an authorized distributor, a QuickConnect Code was included. If you bought a Bluetooth adapter separately and wish to create a QuickConnect Code, please visit Code web site at:

http://www.codecorp.com/support/bdaddr.php.

Important Note: While installing the Bluetooth Configuration Manager software that was included with your Bluetooth adapter, make sure to note the Virtual COM Port number the software assigned for the adapter (e.g. COM 10). This is the COM Port your CR3 will connect through.

To connect your reader, scan the Reset to Factory Defaults below then the *QuickConnect Code* and your CR3 will automatically connect. You should also scan the Save Settings code if you want to save these settings (**Note:** If the CR3 unit powers off without scanning the Save Settings code, you will lose your settings).

Reset to RF Factory Defaults

M684_01

QuickConnect

Save Settings

M188_02

Radio Range and Transferring Data

The CR3 radio is a Class 1 device. If connected to another Class 1 device the unit has roughly a 300 foot line of sight operating range. If connecting to a Class 2 or Class 3 device, the operating range may drop to match the lower range. Once a unit is connected, the application software on the host must be open to receive data.

When the CR3 detects the radio is out of range, the CR3 will store data on the reader's non-volatile memory. The reader will continue to try and send data until radio is back in range. Once the data is sent the data will be erased from the units memory. If the radio cannot connect in 90 seconds, it will give an error beep. The reader will continue to try and connect until it has reached the programmable radio time out setting.

The CR3 Bluetooth protocol allows for two (2) forms of communication:

1. **One Way Mode** - Defined as one way communication between the reader and host. One Way mode only recommended when connecting to a device well within itse specified range or if connected to a device without an operating system (i.e. printer). There are two settings in this mode:
   - Max Range (Default) - Greater range but data reliability is lower
   - Max Reliability - Limits range but reliability is improved

   RF One Way Mode (Max Range)

   M127_01

   RF One Way Mode (Max Reliability)

   M128_01

   Note: While robust, One Way Mode doesn't guarantee data integrity and you may have data loss.

2. **RF Two Way Mode** - This is two way communication between the host and reader. This requires the implementation of software at the application level.* The reader receives confirmation via packet protocol verification and is 100% reliable. Data will be automatically retransmitted if necessary.

   RF Two Way Mode

   M129_02

   *** Note:** You will need to install application software that supports packet communication to operate in RF Two Way Mode. Code offers the CodeXML Bluetooth Modem and a Windows or Pocket PC version of software called CodeXML Router - Bluetooth Edition (BE) that provides for end-to-end Bluetooth handshakes that eliminate out-of-range data loss. CodeXML Router - BE also offers Bluetooth to keyboard wedge communication for applications that require keyboard port input.

   If you are using the CodeXML Bluetooth modem, you must use RF Two Way Mode.

Save Settings

Scan the code below to make the RF settings permanent on the reader:

Save Settings

M188_02

Disconnecting from the Device

You may force disconnection by reading the disconnect code below (The CR3 may not appear disconnected in the slave Bluetooth connection manager for 10 – 15 seconds after the command is issued). The CR3 will also disconnect after 90 seconds of inactivity (**Note:** You may change the radio frequency sleep time out setting however, it may reduce battery life).

Bluetooth Disconnect

M114_02

Reconnecting to the Device

If the device is saved in RF mode it will automatically reconnect when:

1. CR3 is powered up
2. CR3 wakes from sleep mode
3. CR3 reads another code

Note: To set up more than one device, please consult Appendix F: “QuickConnect Codes”

1.7.2 - Bluetooth Radio Auto Connect

Auto Connect: After coming out of sleep mode or after powering up (need to save the connection) the CR3 tries to auto connect with the last Bluetooth radio it was connected with. You may always connect by scanning a QuickConnect code.

Scan the following codes to enable or disable Auto Connect feature for the Bluetooth radio:

Bluetooth Radio Auto Connect On (Default)

M068_01

Bluetooth Radio Auto Connect Off

M067_01

1.7.3 - Bluetooth Radio Auto Disconnect

Auto Disconnect: This feature is used when multiple CR3 units are connecting to the same Bluetooth Radio. By enabling Auto Disconnect the CR3 radio disconnects after each data transmission, allowing other radios to connect.

Scan the following codes to enable or disable Auto Disconnect feature for the Bluetooth radio:

Bluetooth Radio Auto Disconnect On

M066_01

Bluetooth Radio Auto Disconnect Off (Default)

M065_01

1.7.4 - Bluetooth Radio Time Out Settings (Uncabled Operations)

Scan the following codes to set the period of time before the Bluetooth Radio will go into sleep mode from inactivity:

Note: Increasing the time before the unit will time out will decrease battery life. If the unit has power (USB cable, power cable, etc.), it will disconnect based on cable time out settings.

90 Seconds (Default)

M125_01

5 Minutes

M121_01

10 Minutes

M122_01

15 Minutes

M123_01

30 Minutes

M124_01

1 Hour

M119_01

2 Hours

M120_01

1.7.5 - Bluetooth Radio Out of Range Notification Settings

Scan the following codes to enable a beep or vibrate notification when the radio goes out of range:

Enable Out of Range Notify with Beep

M583_01

Enable Out of Range Notify with Vibrate

M582_01

Enable Out of Range Vibrate & Beep

M587_01

Disable Out of Range Vibrate or Beep (Default)

M581_01

1.8 - Reader Feedback Guide

The chart below shows all of the potential icon combinations in CodeViewer™ software. Consult the chart to verify a conguration.

Possible CR3 Configurations			
RS232	**PS2**	**USB**	**Bluetooth Radio**
RS232 One Way Mode This mode is the standard way of transferring unformatted, unpacketized data through the serial/RS232 port.	**PS2 Keyboard Mode** This mode is the standard mode for transferring data from the CR3 through a PS2 port.	**USB One Way Mode** This mode is the standard way of transferring unformatted, unpacketized data through a USB port.	**Bluetooth One Way Mode** This mode is a way of transferring unformatted, unpacketized data by radio frequency (Bluetooth).
RS232 Secure Mode This mode is utilized for transferring data in an encrypted format from the CR3 to a host computer through the serial/RS232 port.		**USB Two Way Mode** This mode is utilized when there is a need for packetized, bidirectional communication between the CR3 and an application through a USB port.	**Bluetooth Two Way Mode** This mode is utilized when there is a need for packetized, bidirectional communication between the CR3 and an application by radio frequency (Bluetooth). This requires implementation of software at the application level. The reader receives confirmation via packet protocol verification and is 100% reliable. Code offers a Windows or PocketPC version of software called CodeXML Router Bluetooth Edition (BE) that automatically provides packet protocol verification. CodeXML Router BE allows for end-to-end Bluetooth handshakes that eliminate issues with out-of-range data loss.
		USB Keyboard Mode This mode emulates the transfer of data from the CR3 to a host computer via a keyboard interface.	**Bluetooth Secure Mode** This mode is utilized for transferring data in an encrypted format from the CR3 to a host computer through a Bluetooth connection.
		USB Virtual COM Port 1 Mode	
		USB Secure Mode This mode is utilized for transferring data in an encrypted format from the CR3 to a host computer through a USB port.	

1.9 - Targeting and Reading Techniques

The CR3 utilizes digital camera technology to take a picture of a symbol. Once an image is captured, the CR3 utilizes advanced decoding algorithms to extract data from the captured image.

The CR3 is available as a palm-held unit or users may purchase a clip-on pistol-grip handle.

The palm held unit features left and right triggers. These triggers may be programmed to perform various features. The reader is shipped with the left trigger and right trigger functioning as a decode symbol command.

The clip-on pistol-grip handle features a trigger on the handle. The two triggers on the top of the unit also work when the handle is attached.

Note: The trigger on the handle attachment is light. Squeezing to hard may damage the unit.

To read a symbol with the CR3:

1. The CR3 features omnidirectional decoding. Center the symbol in any orientation within the laser dot aiming pattern (figure 1.15).

Figure 1.15

Note: The CR3 can read a symbol that is not centered however, the CR3 performs best when a code is centered. If two (2) bar codes are with the imagers decode zone, the CR3 will decode the symbol closest to the center of the aiming dot.

2. The CR3 was developed to decode both very small 2-dimensional symbols and larger 1-dimensional symbols. The unit an innovative dual field decode zone. The CR3 **DECODES BOTH ZONES SIMULTANEOUSLY**. The unit has a lens focused on a near-field for smaller codes (optimal focal point is 4 inches) and one lens focused on a far-field for larger codes (optimal focal point 9 inches). To read smaller symbols move the CR3 closer to the symbol. To read larger symbols move the unit farther away from the symbol (see figure 1.14). The entire CR3 decode zone varies between two (2”) and twenty (20+”) or more inches.

3. Hold the CR3 still - **DO NOT SWIPE OR MOVE THE READER.** Press the trigger until the CR3 beeps, indicating the code has been successfully decoded.

4. The reader may be optimized to your specific environment by scanning codes in Chapter 2.

1.10 - Imager Field of View and Resolution

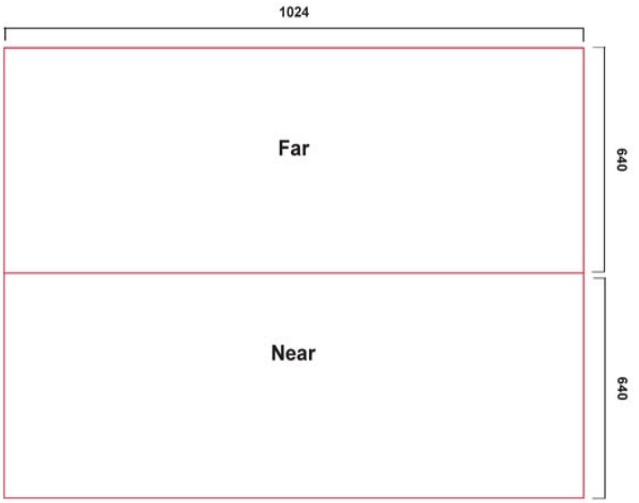
The CR3's dual field optical system may be modified based on your scanning environment. The CR3's megapixel imager may be set to the following three modes:

DOT Mode (Dynamic Optimization Technology): DOT dynamically changes the resolution of the reader between VGA and SXGA. DOT adapts the resolution to you reading environment. This mode works best if you are working with multiple types of symbologies and varying sizes of codes. If you are scanning mostly medium to large 2D or 1D codes you may want to choose VGA. If you are scanning mostly small or densely packed codes, SXGA may be the better choice. It is recommended to experiment with all three modes to determine the best reading performance for your application.

SXGA Mode: In standard SXGA mode (default), the 1.3 Million Pixel imager is divided into near field and far field decode zones. In each zone the resolution is 1024 x 640 pixels (see figure 1.16). In this mode of operation the reader utilizes the highest resolution creating the widest working range on bar code and 2-dimensional symbols of all densities. The trade-off is the amount of time the reader spends processing the image. This time can be reduced by optimization functions:

If only the near field is used (small, high density symbols), the far field image can be ignored. If only the far field is used (large, lower density symbols), the near field can be ignored. Further optimization may be obtained by "windowing" the field to a smaller area. Each focal area may be narrowed by enabling the windowing feature found in section 9.3.

VGA Mode: In VGA mode (optional selection), the 1.3 Million Pixels are sampled on a 4-to-1 basis. This greatly reduces the amount of time necessary for the transfer of the image to the CPU and the resulting processing time (figure 1.17). The trade-off for this increased speed is a reduction in resolution and working range.



SXGA Imaging Area

Figure 1.16

VGA Imaging Area

Figure 1.17

1.11 - Decode Zone

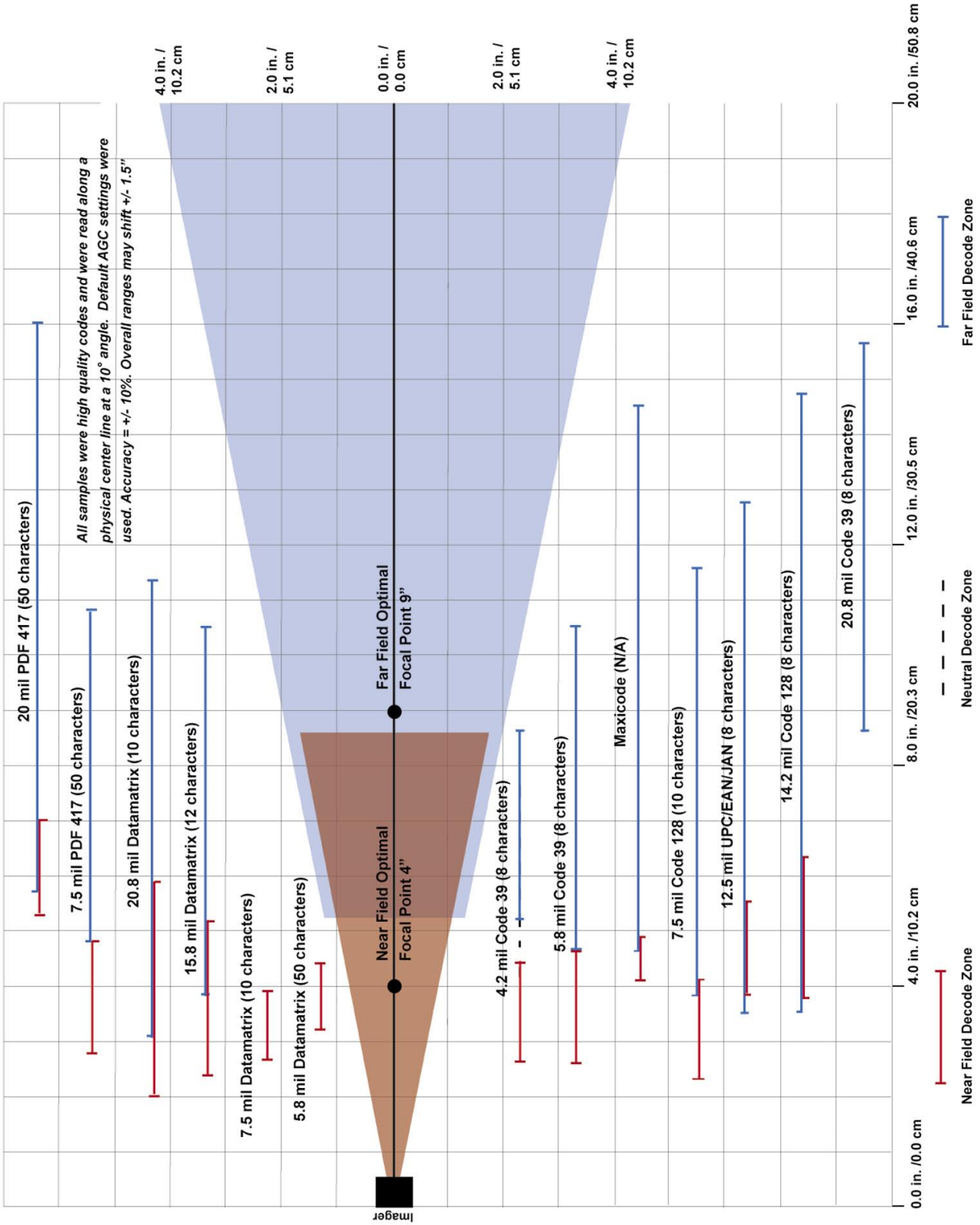

All samples were high quality codes and were read along a physical center line at a 10° angle. Default AGC settings were used. Accuracy = +/- 10%. Overall ranges may shift +/- 1.5"
4.0 in. / 10.2 cm
2.0 in. / 5.1 cm
0.0 in. / 0.0 cm
2.0 in. / 5.1 cm
4.0 in. / 10.2 cm
20.0 in. /50.8 cm
16.0 in. /40.6 cm
12.0 in. /30.5 cm
8.0 in. /20.3 cm
4.0 in. /10.2 cm
0.0 in. /0.0 cm
Far Field Optimal
Focal Point 9"
Near Field Optimal
Focal Point 4"
Imager
20 mil PDF 417 (50 characters)
7.5 mil PDF 417 (50 characters)
20.8 mil Datamatrix (10 characters)
15.8 mil Datamatrix (12 characters)
7.5 mil Datamatrix (10 characters)
5.8 mil Datamatrix (50 characters)
4.2 mil Code 39 (8 characters)
5.8 mil Code 39 (8 characters)
Maxicode (N/A)
7.5 mil Code 128 (10 characters)
12.5 mil UPC/EAN/JAN (8 characters)
14.2 mil Code 128 (8 characters)
20.8 mil Code 39 (8 characters)
Far Field Decode Zone
Neutral Decode Zone
Near Field Decode Zone

Figure 1.18

1.12 - Attaching Handle

To attach the handle, please use the following steps.

1. Place the CR3 in the cradle of the handle and slide the unit back (Figure 1.19). Be careful not to place fingerprints on the front glass when attaching handle.

2. Once the 8-pin DIN connector of the handle begins to enter the opening in the back of the unit, firmly press the unit back until the unit is flush against the handle (Figure 1.20).

Figure 1.19

Figure 1.20

1.13 - Reader Battery Installation

Attaching and Detaching the Lithium Ion Battery

The CR3 comes with a 1950 mAH Lithium Ion battery. To install battery, make sure the battery is in the correct position (figure 1.21). Place the plastic tab of the battery into the reader (figure 1.22). Push the battery in and slide the locking mechanism down (figures 1.23 & 1.24)

Charging the Lithium Ion Battery

The battery automatically charges everytime a cable inteface is attached to the unit and the host is powered up.

Note: The RS232 interface power adapter must be plugged into a wall socket for the unit to charge.

If you power-up the CR3 with a completely discharged battery it will take up to 10 minutes before the unit will become operational.

Figure 1.21

Figure 1.22

Figure 1.23

Figure 1.24

Chapter 2 - Optimization and Trigger Programming

2.1 - Introduction

The CR3 comes pre-configured with DOT (Dynamic Optimization Technology), a revolutionary adaptive read technique that eliminates the need to manually set most individual parameters. From the moment you turn on your CR3, you are taking full advantage of the dual path 1.3 megapixel imager the 400 MHz processor and Dynamic Optimization Technology.

Dynamic Optimization Technology continuously adapts the resolution, illumination, and image field for the fastest automatic symbology identification. DOT achieves decoding speeds for 2D codes that is similar to speeds usually only seen in 1D readers. And achieving this with the widest range of symbology types, sizes, printing media and ambient lighting.

By defining if you are scanning large, small, or different sizes of multiple types of codes, type of symbology(s), 1D or 2D and density of the data embedded in the code, the CR3 offers options for set up that will produce lightening fast decodes.

The chart below shows options that will improve performance based on parameters listed in each box.

	SXGA	VGA	DOT
Both Fields	**SB** High density codes Medium to Small size 2D	**VB** Medium/low density codes Medium to large size 1D or 2D	**AB** Low to high density codes Small to large size 1D or 2D *Factory Default Setting
Near Field	**SN** High density codes Small size 2D	**VN** Medium/low density codes Medium size 1D or 2D	**AN** Low to high density codes Small to medium size 1D or 2D
Far Field	**SF** High density codes Medium size 2D	**VF** Medium/low density codes Large size 1D	**AF** Low to high density codes Medium to large size 1D or 2D

The CR3 is easily customizable; each trigger can be independently programmed for different behavior. With DOT, optimizing the CR3 is as simple as deciding which Field of View is best and what type and size of symbologies are being scanned.

Near Field (NF): The nearest field of the CR3's two image fields. The Near Field has the highest resolution (1024 x 640 DPI). It has an optimal focal point of 4" (101.6 mm) away from the lens of the reader. It has a size of 8.5" long (215.9 mm) by 4" wide (101.6 mm). It has an overall viewing angle of 21 deg. By 12 deg.

Far Field (FF): The farthest field of the CR3's two image fields. The Far Field has the lowest resolution (480 x 320 DPI). It has an optimal focal point of 9" (228.6 mm) away from the lens of the reader. Ithas a size of 4" wide (101.6 mm) at the optimal focal point.

The following tables provide the ability to program all or individual triggers to perform with different parameters.

2.2 - Global Trigger Optimization Matrix

	SXGA	VGA	DOT
Both Fields	M613_02	M616_02	M619_02
Near Field	M614_02	M617_02	M620_02
Far Field	M615_02	M618_02	M621_02

2.3 - Left Trigger Optimization Matrix

	SXGA	VGA	DOT
Both Fields	M622_02	M625_02	M628_02
Near Field	M623_02	M626_02	M629_02
Far Field	M624_02	M627_02	M630_02

2.4 - Left Trigger Programming

Scan the following codes to set the left trigger functionality:

Read Codes with Both Imagers (Default)

M178_01

Read with Far-Field Imager ONLY

M176_01

Read with Near-Field Imager ONLY

M177_01

Upload Stored Data

M180_02

Left Trigger Take Picture

M179_01

Note: If you program a trigger to another function, you will need to reset any performance code settings.

2.5 - Right Trigger Optimization Matrix

	SXGA	VGA	DOT
Both Fields	M631_02	M634_02	M637_02
Near Field	M632_02	M635_02	M638_02
Far Field	M633_02	M636_02	M639_02

2.6 - Right Trigger Programming

Scan the following codes to set the right trigger functionality:

Read Codes with Both Imagers (Default)

M185_01

Read Code with Far-Field Imager ONLY

M183_01

Read Code with Near-Field Imager ONLY

M184_01

Upload Stored Data

M187_02

Right Trigger Take Picture

M186_01

Note: If you program a trigger to another function, you will need to reset any performance code settings.

2.7 - Handle Trigger Optimization Matrix

	SXGA	VGA	DOT
Both Fields	M640_02	M643_02	M646_02
Near Field	M641_02	M644_02	M647_02
Far Field	M642_02	M645_02	M648_02

2.8 - Right Trigger Programming

Scan the following codes to set the handle trigger functionality:

Read Codes with Both Imagers (Default)

M157_01

Read Code with Far-Field Imager ONLY

M155_01

Read Code with Near-Field Imager ONLY

M156_01

Upload Stored Data

M158_02

Handle Trigger Take Picture

M154_01

Note: If you program a trigger to another function, you will need to reset any performance code settings.

2.9 - Continous Trigger Optimization Matrix

	SXGA	VGA	DOT
Both Fields	M649_02	M652_02	M655_02
Near Field	M650_02	M653_02	M656_02
Far Field	M651_02	M654_02	M657_02

2.10 - Continous Scan

Scan the following codes to turn continous scanning on/off:

Both Near & Far Field On

M138_01

Near Field Only On

M140_01

Far Field Only On

M139_01

Off (Default)

M141_02

Note: This function is only recommended for short term use because of battery consumption.
See section 7.4.1 for Sleep Time Out Settings

2.11 - Continous Scan Settings

2.11.1 - Continous Scan - Sleep Time Out

Scan one of the codes below to set the amount of time a cabled CR2 will operate in continous scan mode before entering sleep mode:

Cabled - 2 hours

M136_01

Cabled - Always (Default)

M137_01

Scan one of the codes below to set the amount of time a uncabled CR2 will operate in continous scan mode before entering sleep mode:

Uncabled - 5 minutes (Default)

M145_01

Uncabled - 15 Minutes

M146_01

Uncabled - 30 Minutes

M147_01

Note: This function is only reccommended for short term use because of battery consumption.

2.11.2 - Continous Scan - Trigger Delays

Scan the following codes to set delay time between scans:

0 Seconds (Default)

M142_01

1 Second

M143_01

3 Seconds

M144_01

2.11.3 - Continous Scan - Duplicate Scan Delay

Scan the following codes to set the delay time for reading duplicate codes:

0 Seconds (Default)

M222_01

1 Second

M223_01

3 Seconds

M224_01

2.12 - Motion Detection Scan Settings

Scan the following code to set the reader to read when it detects motion in its scanning zone.

M701_01

Chapter 3 - CR3 Programming: Symbology Settings

3.1 - Introduction

The following chapter will allow a user to change the symbology settings on the CR3. To reset the unit to factory defaults or to save the current settings please scan one of the codes below:

Save Settings

M188_02

Reset to USB Factory Defaults

M049_03

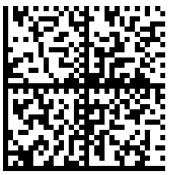
Radio settings will not be reset with this code.

Reset to PS2 Factory Defaults

M060_03

Radio settings will not be reset with this code.

Reset to RS232 Factory Defaults


M418_02

Radio settings will not be reset with this code.

Reset to RF One Way Factory Defaults

M684_01

Clear All CodeXML Rules

M052_01

Readers are shipped at manufacturing with default communication settings that are hardware dependent.

Note: If you do not save your settings and the CR3 loses power you will lose your settings.

3.2 - Aztec Symbology

Scan the following codes to enable/disable Aztec symbology settings:

Aztec On

M273_01

Aztec Off (Default)

M272_01

Sample Aztec Code

3.3 - Codabar Symbology

Scan the following codes to enable/disable Codabar symbology settings:

Codabar On (Default)

M275_01

Codabar Off

M274_01

Sample Codabar

3.4 - Codablock F Symbology

Scan the following codes to enable/disable Codablock F symbology settings:

Codablock F On

M277_01

Codablock F Off (Default)

M276_01

Sample Codablock F Code

Note: When Codablock F and Code 128 decoding are enabled, there is some danger of mistakenly decoding a damaged Codablock F symbol as a Code 128 symbol. Therefore, Code 128 decoding should be disabled when Codablock F decoding is enabled.

3.5 - Code 11 Symbology

Scan the following codes to enable/disable Code 11 symbology settings:

Code 11 On (Default)

M393_01

Code 11 Off

M394_01

Code 11 Checksum 1 digit

M395_01

Code 11 Checksum 1 Digit & Stripped from Result

M396_01

Code 11 Checksum 2 Digit & Stripped from Result

M397_01

Code 11 Sample

3.6 - Code 39 Symbology

Scan the following codes to enable/disable Code 39 symbology settings:

Code 39 On (Default)

M235_01

Code 39 Off

M234_01

Enable Checksum

M237_01

Disable Checksum (Default)

M236_01

Enable Checksum and Strip From Result

M238_01

Code 39 Extended Full ASCII On

M233_01

Code 39 Extended Full ASCII Off (Default)

M232_01

M188_02

Save Settings

Code 39 Short Margin On

M390_01

Code 39 Short Margin Off (Default)

M389_01

Code 39 Trioptic On

M671_01

Code 39 Trioptic Off

M670_01

Sample Code 39 Code

123456789

Sample Trioptic Code 39 Code

3.7 - Code 93 Symbology

Scan the following codes to enable/disable Code 93 symbology settings:

Code 93 On (Default)

M281_02

Code 93 Off

M280_01

Sample Code 93 Code

123456789

3.8 - Code 128 Symbology

Scan the following codes to enable/disable Code 128 symbology settings:

Code 128 On (Default)

M283_01

Code 128 Off

M282_01

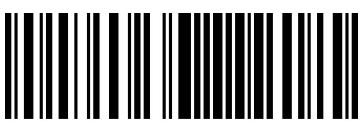
Code 128 Short Margin On

M392_01

Code 128 Short Margin Off (Default)

M391_01

Sample Code 128 Code


12345678912345

3.9 - Composite Symbologies

Scan the following codes to enable/disable Composite symbology settings:

Composite On

M285_01

Composite Off (Default)

M284_01

3.10 - Data Matrix Symbology

Scan the following codes to enable/disable Data Matrix symbology settings:

Data Matrix Rectangle On

M242_01

Data Matrix Rectangle Off (Default)

M241_01

Data Matrix Inverse On

M239_01

Data Matrix Inverse Off (Default)

M240_01

Sample Data Matrix Code

Sample Data Matrix Code

3.11 - GoCode Symbology

GoCode is a miniature, two-dimensional (2-D) symbol. Developed to fit within a line of text, GoCode features a multi-dimensional, adaptable matrix pattern that may be reproduced on virtually any surface. GoCode is a private symbology and may be utilized by purchasing a runtime license through Code. GoCode has many significant advantages over all common linear barcodes and 2-D symbols. Please contact Code for more information on the benefits of utilizing a private symbology.

Sample GoCode

3.12 - Interleaved 2 of 5 Symbology

Scan the following codes to enable/disable Interleaved 2 of 5 symbology settings:

Int 2 of 5 On (Default)

M244_01

Int 2 of 5 Off

M243_01

Int 2 of 5 Two Digits On

M246_01

Int 2 of 5 Two Digits Off

M245_02

Int 2 of 5 Four Digits On

M248_01

Int 2 of 5 Four Digits Off

M247_01

Sample Int 2 of 5 Code

123456789

3.13 - Maxicode Symbology

Scan the following codes to enable/disable Maxicode symbology settings:

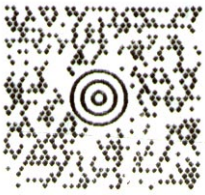
Maxicode On

M289_04

Maxicode Off (Default)

M288_01

Sample Maxicode



3.14 - Matrix 2 of 5 Symbology

Scan the following codes to enable/disable Matrix 2 of 5 symbology settings:

Matrix 2 of 5 On

M675_01

Matrix 2 of 5 Off (Default)

M674_01

Matrix 2 of 5 Sample

3.15 - Micro PDF417 Symbology

Scan the following codes to enable/disable micro PDF 417 symbology settings:

MicroPDF417 On

M301_01

MicroPDF417 Off (Default)

M300_01

Sample MicroPDF417

3.16 - MSI Plessy Symbology

Scan the following codes to enable/disable MSI Plessy symbology settings:

MSI Plessy On

M291_01

MSI Plessy Off (Default)

M290_01

Sample MSI Plessy

3.17 - NEC 2 of 5 Symbology

Scan the following codes to enable/disable NEC 2 of 5 symbology settings:

NEC 2 of 5 On

M673_01

NEC 2 of 5 Off (Default)

M672_01

3.18 - PDF 417 Symbology

Scan the following codes to enable/disable PDF 417 symbology settings:

PDF 417 On (Default)

M293_01

PDF417 Off

M292_01

Macro PDF 417 On

M287_01

Macro PDF 417 Off (Default)

M286_01

Sample PDF 417 Code

If your data is encoded into multiple PDF 417 codes, the Macro PDF 417 feature allows a user to scan these PDF 417 codes and combine the information.

The Macro PDF 417 function has the following limitations:

1. You can scan non-MacroPDF417 codes in the middle of a MacroPDF417 file. They will be uploaded immediately. The incomplete MacroPDF417 segments will be buffered.

2. Scanning a MacroPDF417 code with a file ID different than the MacroPDF417 segments already stored will cause the stored segments being deleted(aborted) and you will hear beeps. The new file starts with this code.

3. The CR3 only support up to 16 file segments. When the buffered segments reach 16 and the file is still not complete, you will hear 3 beeps and all the buffered segments will be deleted.

4. You can not scan a segment of the same file more than once.

Note: The MacroPDF 417 feature may only be utilized with firmware version 1242 or greater.

3.19 - Pharmacode

For an explanation of Pharmacode settings and all programming codes please refer to Appendix G of the CR3 User's Manual. You may download the Appendix G at:

www.codecorp.com/support/usermanuals.htm

3.20 - Postal Symbologies

All postal codes default settings are OFF. Scan the following codes to enable the appropriate Postal symbology:

Note: If you wish to change which Postal code is activated, you MUST scan the disable all postal codes symbol and then scan your desired symbology.

Australian Post On

M252_01

Japan Post On

M253_01

KIX

M254_01

Planet On

M256_01

Postnet On

M257_01

Postnet and Planet On

M255_01

Royal Mail On

M258_01

Disable All Postal Codes (Default)

M259_01

Sample Postnet Code

3.21 - QR Code Symbology

Scan the following codes to enable/disable QR Code symbology settings:

QR Code On

M261_01

QR Code Off (Default)

M260_01

Enable Checksum

M265_01

Disable Checksum (Default)

M264_01

QR Code Inverse On

M262_01

Both Inverse and Standard On

M263_01

All QR On (includes Micro QR)

M609_03

Inverse QR and Micro QR On

M687_02

Sample QR Code

Sample Micro QR

3.22 - RSS Symbology

Scan the following codes to enable/disable RSS symbology settings:

RSS Limited On

M268_01

RSS 14 and RSS 14 Truncated On

M271_01

RSS 14 Stacked On

M270_01

RSS Expanded On

M269_01

All RSS On

M267_01

All RSS Off (Default)

M266_01

Sample RSS Limited Code

Sample RSS 14 Code

Sample RSS 14 Truncated Code

Sample RSS 14 Stacked Code

3.23 - Telepen Symbology

Scan the following codes to enable/disable Telepen symbology settings:

Telepen On

Telepen Off (Default)

Sample Telepen

3.24 - UPC/EAN/JAN

Scan the following codes to enable/disable UPC/EAN/JAN symbology settings:

UPC On (Default)

UPC Off

UPC Short Margin Enabled

UPC Short Margin Disabled (Default)

UPC Extension On

UPC Extension Off

Sample UPC A Code

Chapter 4 - Reader Feedback and Special Settings

4.1 - Volume and Vibration Settings

Scan the following codes to set vibration mode:

Vibrate On / Beep On

M107_01

Vibrate On / Beep Off

M109_01

Vibrate Off / Beep On (Default)

M108_01

Scan the following codes to set your reader's volume:

Beep Off

M110_01

Beep Low

M111_01

Beep High (Default)

M112_01

Scan the following codes to set the volume for keypad button press sounds:

Off (Default)

M697_01

Low

M698_03

Medium

M699_03

High

M700_03

4.2 - Code Readability Index

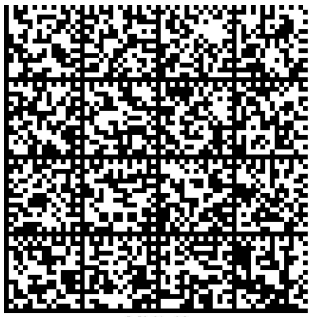
The Readability Index provides a measurement of a specific symbol's ease or difficulty to be decoded by the CR3. The Readability Index is specific to the CR3, and should not be confused with a verification quality measurement.

The Readability Index is a blend of information obtained from the internal operations of the decoding algorithm pertaining to contrast, symbology construct, error detection, forward error correction (if applicable), and other symbology-specific characteristics.

The Readability Index is a score on a scale of 01 (very poor) to 100 (very readable). Due to differences based on motion, skew, reflection, focus, and ambient lighting, the Readability Index on the same symbol may vary somewhat from read to read. However, a poor contrast or damaged symbol will score lower than a high contrast undamaged symbol. The Readability Index can be used as a quick check on the reliability of label generation or marking systems. When used in conjunction with the CR3 stand (or fixed mount positioning) which fixes the distance from the reader to the symbol, and constant ambient light, the Readability Index provides a symbol quality assurance tool and check point for feedback to an overall label or marking quality control system.

The Readability Index is enabled by first reading a CodeXML rule into the permanent CR3 Memory:

Code Readability Index Rule:


M061_02

The reader will store the rule and reset, but will not output the Readability Index until the Readability Index Output Enable code is read.

Readability Index Output Enable:

M062_02

Once read, each time a data symbol is read, the index will be output, followed by a comma, (,) followed by the decoded data.

The Reader will continue to output the Readability Index upon every read until disabled, either by reset or by reading the Readability Index Output Disable:

Readability Index Output Disable:

M063_02

4.3 - Backlight Intensity Settings

Scan the following codes to set the intensity of the CR3's backlight with High being the brightest and Low being the dimmest:

Low

M678_02

Med - Default

M679_02

High

M680_02

4.4 - Backlight Timeout Settings

Scan the following codes to set the backlight settings:

Backlight Off

M686_05

3 seconds (Default)

M681_03

6 seconds

M682_03

10 seconds

M683_03

4.5 - Laser Settings

Scan the following codes to turn laser targeting on/off:

On (Default)

M055_01

Off

M054_01

Scan one of the following codes to set the brightness of the CR3 laser.

High (Default)

M058_01

Medium

M057_01

Low

M056_01

4.6 - Reader Power Off Settings

Scan the following codes to set the amount of time before a reader powers down:

1 Hour

M691_02

2 Hours - Default

M688_02

4 Hours

M689_02

Press and hold (1 second) any red trigger on the reader to power up a unit.

M188_02

Save Settings

4.7 - Reader ID and Firmware Version

To find out the Reader ID and firmware version, open a text editor program (i.e. Notepad, Microsoft Word...) and read the following code:

Note: For units with a Bluetooth Radio, the Reader ID is also your Bluetooth Radio PIN #.

Reader ID and Firmware

M153_01

You will get a text string with your firmware version and CR3 ID number (see below):

Xap/iVVVVWWWWXXXXSSSSSSSSSSPXXX-XX+XX

Xap/i - Code Internal ID (not applicable)

VVVV is the application firmware version number

WWWW is the bootloader firmware version number

XXXX is the radio firmware version number

SSSSSSSSSS Reader's serial number (ten digits)

P is "A" if running firmware is the application, "B" if bootLoader

XXX-XX+XX - Internal ID (not applicable)

Example:

Xap/i3000201206000010002363A06D-SD+SQ

Note: Code will periodically release new firmware for CR3 units. For information on latest firmware versions, call Code at (801) 495-2200. To upgrade the firmware please visit Code website at http://www.codecorp.com/support/downloads.htm and follow instructions.

4.8 - Reader Settings Lock

To lock or unlock the current settings on your reader please scan the codes below:

Reader Settings Locked

M429_01

Reader Settings Unlocked

M428_01

PLEASE NOTE: Prefix and Suffix programming codes, memory transfer and delete commands, "Clear All CodeXML Rules" and "Suffix -Erase/None"commands are not locked by this feature.

M188_02

Save Settings

4.9 - Keyboard Support

Scan the following codes to set appropriate keyboard mapping:

US English (Default)

M172_01

US English - No Leading 0

M602_01

US English - ctrl + char

M606_01

French

M603_01

German

M604_01

Japanese

M605_01

Universal Keyboard

M173_01

Custom Keyboard

M171_01

Chapter 5 - Advanced Decode Performance

5.1 - Continous Illumination

Scan one of the following codes to have enable continous LED illumination.

Enable Continous Illumination

M580_02

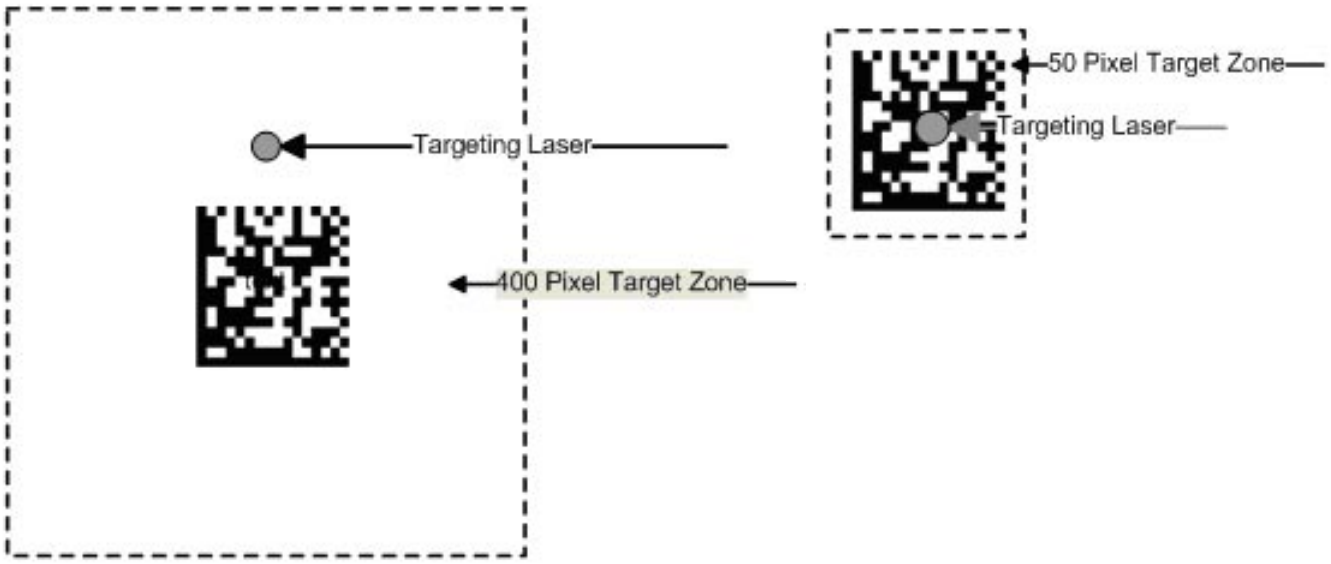
Disable Continous Illumination (Default)

M579_02

Note: Code recommends only using this feature wih cabled units due to increased power consumption.

5.2 - Set Targeting Zone Tolerances

Targeting zone is the area around the outside of the code that is viewed by the imager. The values of each of the following codes are the pixels extending from the outside of the edge of the symbol being scanned. As the targeting zone becomes smaller the targeting laser must be more centered in the symbol being scanned. Conversely, as the targeting area outside the code gets larger there is less precision needed with the targeting laser. There is also a greater chance the imager will have more than one code in the field of view. The symbol in focus, closest to the targeting laser will be decoded.



50 Most Accurate

M189_01

75

M190_01

100

M191_01

125

M192_01

150

M193_01

200

M195_01

400

M194_01

1600 (Default)

Least Accurate

M196_01

5.3 - Windowing

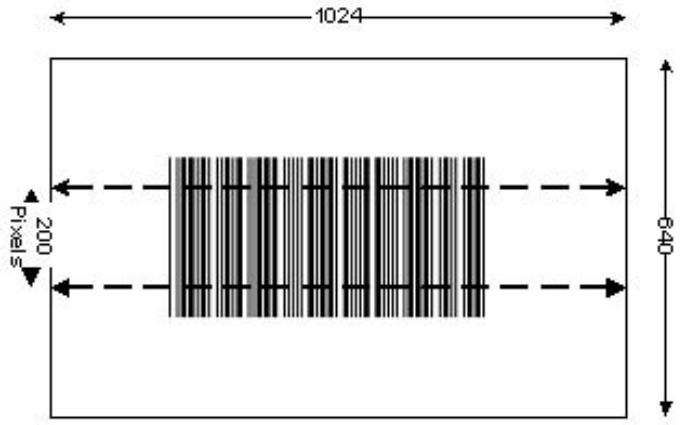
If only one size of bar code is being scanned in an application, the CodeReader can be optimized to reduce processing time by adjusting the viewing frame within the field of view of the image (ONLY FOR SXGA MODE).

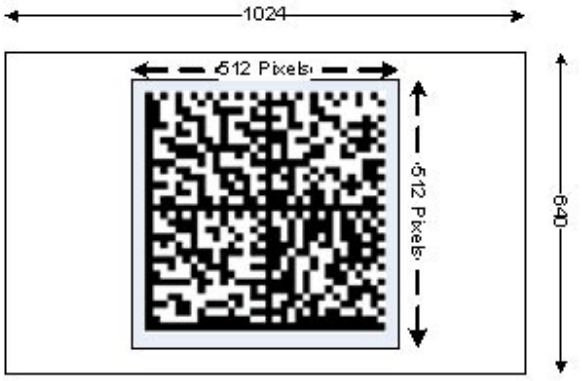
By reducing the 640 axis of the imager to 200 pixels, 1-D codes are processed quicker. Because only a horizontal strip of a 1-D code is needed to be decoded this narrow strip of the imager is all that is needed. The area above and below the 200 pixels, which is always in the center of the imager, is ignored. This reduces the number of pixels that must be processed.

Windowing can also improve the processing time of 2-D codes

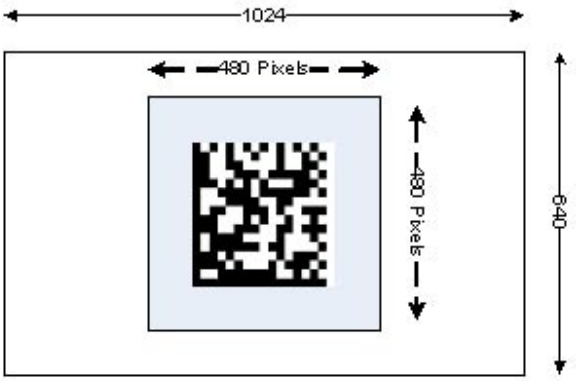
You may also negatively impact the reader performance if the window size is too small. If it is necessary to have the reader farther away to read the code than normal the window may be too small.

Reading other types of codes, especially large codes, may be difficult while using this setting.





Medium Code Windowing



Small Code Windowing

Users may optimize the units decode zone if their application only requires one barcode format. If the size and density of the barcodes to be scanned are consistent, please select the setting below that best describes your environment (ONLY FOR SXGA MODE).

1-Dimensional Codes ONLY (200 x 1024 pixels)

M209_01

Caution: It may be more difficult to read other codes while in this setting. You must have the reader farther away than normal.

Small 2-Dimensional Codes (480 x 480 pixels)

M210_01

Medium 2-Dimensional Codes (512 x 512 pixels)

M211_01

Large 2-Dimensional Codes (640 x 640 pixels)

M212_01

Reset to Factory Default Setting (640 x 1024 pixels)

M213_01

5.4 - VGA & Megapixel Settings

User's may optimize the CR3 unit's megapixel (SXGA) imager (1280 x 1024) to a VGA (640 x 480). This feature is used to decrease the pixel sampling area, which will greatly increase processing speed. This is an advanced feature used for the rapid decoding of 1-dimensional/linear codes and larger module size 2-dimensional codes. Code recommends testing this feature, as it will not work with many high density codes.

Enable VGA - 640 x 480

M202_02

Enable SXGA - 1280 x 1024

M201_02

Enable DOT (Default)

M611_01

5.5 - Mirror Decoding

Scan the following codes to enable/disable the mirroring feature:

On

M182_01

Off (Default)

M181_02

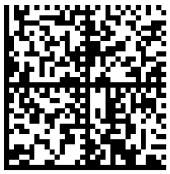
Note: The Mirroring feature allows the CR3 to read codes as they are seen through a mirror (inversed 180°). If the Mirroring feature is enabled, all other code reading ability will be disabled.

Chapter 6 - Adding a Prefix or Suffix and Reader Text Commands

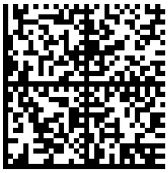
6.1 - Prefix Settings

If you scan the following codes, you may lose your current settings. Make sure to save settings on your reader before scanning the prefix codes. If you scan more than one prefix you will receive each scanned prefix in your scanned data (i.e. If you scan comma prefix twice, you will get two comma prefixes). Scan the following codes to set appropriate prefix.

Prefix - Comma


M159_02

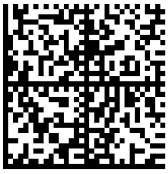
Prefix - Space


M164_02

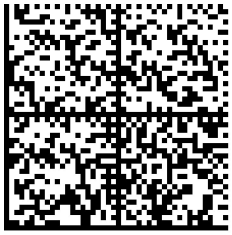
Prefix - Tab (USB Mode)

M166_01

Prefix - Tab

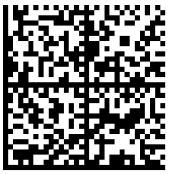

M218_02

Prefix - Erase


M404_01

This code will erase all prefix data.

Prefix - Carriage Return Line Feed


M214_02

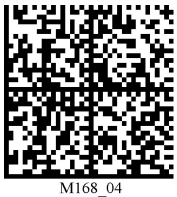
Only Use with Serial Applications

Note: If you require a special configuration, please contact Code at (801) 495-2200.

6.2 - Suffix Settings

If you scan the following codes, you may lose your current settings. Make sure to save settings on your reader before scanning the Suffix codes. If you scan more than one suffix you will receive each scanned suffix in your scanned data (i.e. If you scan comma suffix twice, you will get two comma suffixes). Scan the following codes to set appropriate suffix:

Suffix - Carriage Return

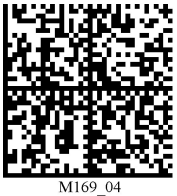

M168_04

Only Use with Serial Applications

Suffix - Comma

M160_04

Suffix - Line Feed


M169_04

Only Use with Serial Applications

Suffix - Carriage Return Line Feed

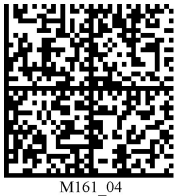
M170_04

Only Use with Serial Applications

Suffix - Space

M165_04

Suffix - Enter


M161_04

Only Use with USB or Keyboard Mode

M188_02

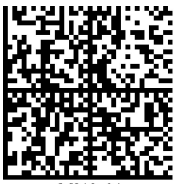
Save Settings

Suffix - Tab

M167_04

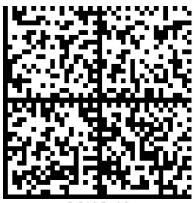
Only Use with USB Keyboard, PS2 Keyboard Mode or with CodeXML Router or PS2 CodeXML Bluetooth Modem

Suffix - Tab


M219_04

Only Use with RS232 Mode

Suffix - Erase / None


M405_02

This code will erase all suffix data.

6.3 - Reader Text Commands

Enabling Reader Text Commands, allows the CR3 to accept text commands via RS232 or RF commmunication. Scan the following codes to enable/disable reader text commands:

Reader Text Commands On (Default)

M198_02

Reader Text Commands Off

M197_01

6.4 - Erase Prefix and Suffix Settings

Scan the following codes to erase all prefix and suffix data.

Erase Prefix & Suffix Data

M406_02

Chapter 7 - CR3: Maintenance and Troubleshooting

7.1 - Reset Reader to Factory Defaults

Scan the following codes to reset reader:

Reset to USB Factory Default Settings

M049_03

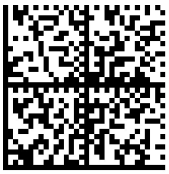
Radio settings will not be reset with this code.

Reset to PS/2 Factory Default Settings

M060_03

Radio settings will not be reset with this code.

Reset to RS232 Factory Default Settings


M418_02

Radio settings will not be reset with this code.

Reset to RF One Way Factory Default Settings

M684_01

Bootloader Mode

M692_01

Bootloader mode is utilized to download new version of bootloader firmware and cutom applications.

Clear All CodeXML Rules Prefix & Suffix

M052_01

Clear All Stored Data

M071_01

Save Settings Code

M188_02

Note: If you scan the following codes, you may lose your current settings. Make sure to save settings on your reader before scanning the above codes.

7.2 - General Safety Information

Repairs and Adjustments - Only those individuals authorized by Code should attempt to make repairs or adjustments to CR3 equipment. If the reader casing is opened the warranty is voided

Power Supply - Use only the particular power supply provided for use with a specific unit when operating Code equipment.

Accessories - Only those accessories approved by Code (page 9) should be utilized with Code equipment. Non-compliance with any of the above may result in:

- Injury to individuals handling the equipment
- Damage to the equipment
- Voiding of the maintenance contract

Lasers - The CR3 utilizes a laser **FOR TARGETING PURPOSES ONLY.** If the laser is activated, do not stare into the beam.

Lithium Ion Battery - Warning: Charge the battery with Code cables ONLY. Do not open battery, dispose of in fire, or short circuit - it may ignite, explode, leak, or get hot causing personal injury.

7.3 - Warranty

Code Corporation's Code Readers carry a one year limited warranty as described herein.

Customers may purchase a one to four year extension to this warranty. Please contact a Code representative for more information.

Limited Warranty

Code manufactures its hardware products in accordance with industry-standard practices. Code warrants its products will be free from defects in materials and workmanship, provided that the products are used under normal operating condition intended by the Manufacturer. This warranty is provided to the original owner only and is not transferable to any third party. This warranty is subject to any and all accompanying disclaimers, limitations and other terms of this section.

Terms of Warranty

Products with serial numbers, such as but not limited to reader units, radios, CodeXML modems, are warranted for period a twelve (12) months from date of shipment. Wear items and accessories having a date code, such as but not limited to batteries, will carry a 180-day limited warranty. Non-serialized items, such as but not limited to handles and cables, will carry a 90-day limited warranty.

Exclusions

No warranty herein contained or set out shall apply to any product (i) which has been repaired, altered or tampered with unless done or approved by Code, (ii) which has not been maintained in accordance with any operating or handling instructions supplied by Code, (iii) which has been subjected to unusual physical or electrical stress, immersion in fluids, puncture, crushing, misuse, abuse, power shortage, improper power supply such as incorrect voltage or wrong polarity, negligence or accident, or (iv) which has been used other than in accordance with the product operating and handling instructions. Preventive maintenance is the responsibility of the customer and is not covered under this warranty.

Warranty Coverage and Procedure

During the warranty period, Code will repair or replace defective products returned to Code's service center in the US. For worldwide warranty service call Code Warranty Support at 1-801-495-2200.

If warranty service is required, Code will issue a Return Material Authorization Number. Products must be shipped in the original or comparable packaging, with shipping and insurance charges prepaid. Code will ship the repaired or replacement product freight and insurance prepaid in North America. Shipments from the US or other locations will be made F.O.B. Code's manufacturing plant. Code will use new or refurbished parts at its discretion and will own all parts removed from repaired products. Customer will pay for any pre-shipped replacement product in case it does not return the replaced product to Code within 7 days of receipt of the replacement product. The process for return

and customer's charges will be in accordance with Code's Exchange Policy in effect at the time of the exchange.

Customer accepts full responsibility for its software and data including the appropriate backup thereof. Repair or replacement of a product during warranty will not extend the original warranty term. Code's Customer Service organization offers an array of service plans, such as on-site, depot, or phone support, that can be implemented to meet customer's special operational requirements and are available at a substantial discount during warranty period.

General

EXCEPT FOR THE WARRANTIES STATED ABOVE, CODE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, ON PRODUCTS FURNISHED HEREUNDER, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. The stated express warranties are in lieu of all obligations or liabilities on part of Code for damages, including without limitation, special, indirect, or consequential damages arising out of or in connection with the use or performance of the product. Seller's liability for damages to buyer or others (regardless of the form of action, whether by contract, warranty, tort, malpractice, and/or otherwise) resulting from the use of any product, shall in no way exceed the purchase price of said product. In no event shall Code be liable for any consequential, special, indirect, incidental or punitive damages, or for any loss of profits, revenue or data, even if Code has been advised of the possibility thereof.

7.4 - CR3 Accessories

Please visit www.codecorp.com for more information on Code accessories.

7.5 - Frequently Asked Questions

For a complete list of Frequently Asked Questions, please visit:

http://www.codecorp.com/support/faq.htm

7.6 - CR3 Maintenance

The CR3 device operates efficiently and reliably and needs only a minimum of maintenance to operate. A few tips are given below for maintenance suggestions.

Cleaning the CR3's Window

The CR3's window should be clean to allow the best performance of the device. The window is the clear plastic piece inside the head of the Reader. Do not touch the window. Your CR3 uses CMOS technology that is much like a digital camera. A dirty window may stop the CR3 from reading codes.

If the window becomes dirty, clean it with a soft, non-abrasive cloth or a facial tissue (no lotions or additives) that has been moistened with water. A mild detergent may be used to clean the window, but the window should be wiped with a water moistened cloth or tissue after using the detergent.

The CR3's display screen and housing may be cleaned in the same way.

For applications that require cleaning with disinfectant, please use products with the following ingredients:

1) Isopropyl Alcohol
2) Ethyl Alcohol (Denatured Grade)

Code does not recommend using bleach.

Technical Support and Returns

For returns or technical support call Code Technical Support at (801) 495-2200. For all returns Code will issue an RMA number which must be placed on the packing slip when the reader is returned.